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THE EFFECT OF QUININ ON RABIES *

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About a year ago, Moon[1] reported the recovery of three dogs treated with quinin after the development of symptoms of rabies. We attempted to repeat his work, but because of the results obtained the work was discontinued. The recently reported, negative results of Cummings,[2] who found that quinin had no prophylactic nor curative effect in rabbits, and the equally negative results of Frothingham and Halliday,[3] using rabbits, seem to warrant the addition of our results.

A series of rabbits were inoculated with fixed virus through a trephine opening, and the injection of quinin was started on different days thereafter. The quinin was the bisulphid, and a 1-8 solution in water was used. The inoculations were made August 9, and Rabbits 1 and 2, which received no quinin, became paralyzed August 15, and died August 17. Rabbits 3, 4, and 5, which received 2 c.c. of the quinin solution on August 14, as well as Rabbits 6 and 7, which received 2 c.c. of quinin solution on each day from August 11-15, also became paralyzed on August 15, and died August 17. The remaining rabbits in the series were killed by the quinin; 12 c.c. killing in a few hours, 8 c.c. over night, and 4 c.c. after several doses.

No difference could be noticed in any of the rabbits. The treatment was started so early that it would be expected to manifest some influence if it possessed any potency.

Six dogs were then inoculated with rabies and treatment with quinin was started on a companion dog as soon as any symptom developed in a dog of similar weight. The dogs were inoculated intracranially with street virus on August 9.

Dog 1, a pup, became depressed August 19; paralyzed August 20; died the next day.

Dog 2, a black and tan, weighing 7 pounds, showed no symptoms on August 21 and received 15 gr. of quinin sulphate, in capsules of 5 gr., every day from August 21 to September 2, when it appeared well and lively; September 12, it

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[1] Jour. Infect. Dis., 1913, 13, p. 165.
[2] Ibid., 1914, 15, p. 205.
[3] Jour. Med. Research, 1914, 30, p. 275.

showed weakness of the hind legs; September 13, weakness and a high-pitched bark; September 15, death.

Dog 3, 24.5 pounds, showed weakness August 24; became paralyzed August 25; died the next day.

Dog 4, weighing 16.25 pounds, showed no symptoms on August 25 and was given 20 gr. of quinin sulphate in capsules of 5 gr.; August 26, it received 12 c.c. of a solution quinin bisulphate 1-8; August 28, there was spastic paralysis, and it received 10 gr. of quinin sulphate and 16 c.c. of the bisulphate solution; on August 29 it received 15 gr. of the sulphate and 16 c.c. of the solution; August 30, died.

Dog 5, terrier, 18.25 pounds, appeared excited on August 25 and received 20 gr. quinin sulphate; August 26, it received 5 gr. of quinin sulphate; August 27, 10 c.c.; August 28, 16 c.c.; died August 29.

Dog 6, mongrel, 18 pounds, acted suspiciously August 24; August 25, received 25 gr. of the sulphate, it was excited and rather weak; on August 26 it received 30 gr.; August 27, 40 gr.; August 28, 25 gr.; August 29, it seemed somewhat improved and received 30 gr.; again on August 30 and 31; on September 1 its condition was good, altho there was a slight weakness, and it vomited about half of the quinin given that day, namely 30 gr.; found dead, September 2.

In all dogs, the brain contained typical Negri bodies, and material from each dog produced rabies in guinea-pigs, indicating that the virulence was not destroyed by the treatment.

The only possible effect of quinin in these experiments is the remission in Dog 6 and the prolongation of the period of incubation in Dog 2.

SUMMARY

Of four dogs treated with quinin, one showed a prolonged period of incubation and another showed a remission in the course of the disease, in either case, however, not beyond variations in the natural course of the disease. The fact that these variations occurred in the two of four dogs receiving the largest amounts of quinin is probably only a coincidence. No influence was observed on the period of incubation in rabbits.